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OCT 25 2002

SEQUENCE LISTING

TECH CENTER 1600/2900

<110> Dellapenna, Dean
Collakova, Eva
Coughlan, Sean J.
Helentjaris, Timothy G.

<120> PHYTYL/PRENYLTRANSFERASE NUCLEIC ACIDS,
POLYPEPTIDES AND USES THEREOF

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<141> 2000-04-28

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Met Glu Ser
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ctg ctc tct agt tct tct ctt gtt tcc gct gct ggt ggg ttt tgt tgg 164
Leu Leu Ser Ser Ser Ser Leu Val Ser Ala Ala Gly Gly Phe Cys Trp
5 10 15

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Lys Lys Gln Asn Leu Lys Leu His Ser Leu Ser Glu Ile Arg Val Leu
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Arg Cys Asp Ser Ser Lys Val Val Ala Lys Pro Lys Phe Arg Asn Asn
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Leu Val Arg Pro Asp Gly Gln Gly Ser Ser Leu Leu Leu Tyr Pro Lys
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His Lys Ser Arg Phe Arg Val Asn Ala Thr Ala Gly Gln Pro Glu Ala

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Phe	Tyr	Arg	Phe	Ser	Arg	Pro	His	Thr	Val	Ile	Gly	Thr	Val	Leu	Ser	
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Ile	Leu	Ser	Val	Ser	Phe	Leu	Ala	Ala	Glu	Lys	Val	Ser	Asp	Ile	Ser	
				120					125					130		
cct	tta	ctt	ttc	act	ggc	atc	ttg	gag	gct	ggt	ggt	gca	gct	ctc	atg	548
Pro	Leu	Leu	Phe	Thr	Gly	Ile	Leu	Glu	Ala	Val	Val	Ala	Ala	Leu	Met	
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Met	Asn	Ile	Tyr	Ile	Val	Gly	Leu	Asn	Gln	Leu	Ser	Asp	Val	Glu	Ile	
		150					155					160				
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Asp	Lys	Val	Asn	Lys	Pro	Tyr	Leu	Pro	Leu	Ala	Ser	Gly	Glu	Tyr	Ser	
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Val	Asn	Thr	Gly	Ile	Ala	Ile	Val	Ala	Ser	Phe	Ser	Ile	Met	Ser	Phe	
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Trp	Leu	Gly	Trp	Ile	Val	Gly	Ser	Trp	Pro	Leu	Phe	Trp	Ala	Leu	Phe	
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Val	Ser	Phe	Met	Leu	Gly	Thr	Ala	Tyr	Ser	Ile	Asn	Leu	Pro	Leu	Leu	
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cgg	tgg	aaa	aga	ttt	gca	ttg	ggt	gca	gca	atg	tgt	atc	ctc	gct	gtc	836
Arg	Trp	Lys	Arg	Phe	Ala	Leu	Val	Ala	Ala	Met	Cys	Ile	Leu	Ala	Val	
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Arg	Ala	Ile	Ile	Val	Gln	Ile	Ala	Phe	Tyr	Leu	His	Ile	Gln	Thr	His	
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Ala	Phe	Met	Ser	Phe	Phe	Ser	Val	Val	Ile	Ala	Leu	Phe	Lys	Asp	Ile	
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Pro	Asp	Ile	Glu	Gly	Asp	Lys	Ile	Phe	Gly	Ile	Arg	Ser	Phe	Ser	Val	
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Met	Ala	Tyr	Ala	Val	Ala	Ile	Leu	Val	Gly	Ala	Thr	Ser	Pro	Phe	Ile	
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Trp	Ser	Lys	Val	Ile	Ser	Val	Val	Gly	His	Val	Ile	Leu	Ala	Thr	Thr	
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Leu	Trp	Ala	Arg	Ala	Lys	Ser	Val	Asp	Leu	Ser	Ser	Lys	Thr	Glu	Ile	
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act	tca	tgt	tat	atg	ttc	ata	tgg	aag	ctc	ttt	tat	gca	gag	tac	ttg	1268
Thr	Ser	Cys	Tyr	Met	Phe	Ile	Trp	Lys	Leu	Phe	Tyr	Ala	Glu	Tyr	Leu	
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ctg	tta	cct	ttt	ttg	aag	tgactgacat	tagaagagaa	gaagatggag								1316
Leu	Leu	Pro	Phe	Leu	Lys											
			390													

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tgatataatg	ctaagcgaag	aaatcgattc	tatgtagaaa	tttccgaaac	tatgtgtaaa	1556
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Pro	Glu	Ala	Phe	Asp	Ser	Asn	Ser	Lys	Gln	Lys	Ser	Phe	Arg	Asp	Ser	
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Phe	Ala	Thr	Ala	Phe	Met	Ser	Phe	Phe	Ser	Val	Val	Ile	Ala	Leu	Phe	
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Phe	Ser	Val	Thr	Leu	Gly	Gln	Lys	Arg	Val	Phe	Trp	Thr	Cys	Val	Thr	
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Pro	Phe	Ile	Trp	Ser	Lys	Val	Ile	Ser	Val	Val	Gly	His	Val	Ile	Leu	
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Thr	Glu	Ile	Thr	Ser	Cys	Tyr	Met	Phe	Ile	Trp	Lys	Leu	Phe	Tyr	Ala	
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ccc	gtg	cgg	ccc	ggc	gcg	gcc	cgc	ccg	cga	gat	cat	ttt	cta	cca	cca		101
Pro	Val	Arg	Pro	Gly	Ala	Ala	Arg	Pro	Arg	Asp	His	Phe	Leu	Pro	Pro		
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tgt	tgt	tcc	ata	caa	cga	aat	ggt	gaa	gga	cga	att	tgc	ttt	tct	agc		149
Cys	Cys	Ser	Ile	Gln	Arg	Asn	Gly	Glu	Gly	Arg	Ile	Cys	Phe	Ser	Ser		
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Gln	Arg	Thr	Gln	Gly	Pro	Thr	Leu	His	His	His	Gln	Lys	Phe	Phe	Glu		

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ggt aat gct tcg ggg caa cag ctg cag tct gaa cct gaa aca cat gat			293
Val Asn Ala Ser Gly Gln Gln Leu Gln Ser Glu Pro Glu Thr His Asp			
	80	85	90
tct aca acc atc tgg agg gca ata tca tct tct cta gat gca ttt tac			341
Ser Thr Thr Ile Trp Arg Ala Ile Ser Ser Ser Leu Asp Ala Phe Tyr			
	95	100	105
aga ttt tcc cgg cca cat act gtc ata gga aca gca tta agc ata gtc			389
Arg Phe Ser Arg Pro His Thr Val Ile Gly Thr Ala Leu Ser Ile Val			
	110	115	120
tca gtt tcc ctt cta gct gtc cag agc ttg tct gat ata tca cct ttg			437
Ser Val Ser Leu Leu Ala Val Gln Ser Leu Ser Asp Ile Ser Pro Leu			
	125	130	135
ttc ctc act ggt ttg ctg gag gca gtg gta gct gcc ctt ttc atg aat			485
Phe Leu Thr Gly Leu Leu Glu Ala Val Val Ala Ala Leu Phe Met Asn			
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Val Asn Lys Pro Thr Leu Pro Leu Ala Ser Gly Glu Tyr Thr Leu Ala			
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Thr Gly Val Ala Ile Val Ser Val Phe Ala Ala Met Ser Phe Gly Leu			
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gga tgg gct gtt gga tca caa cct ctg ttt tgg gct ctt ttc ata agc			677
Gly Trp Ala Val Gly Ser Gln Pro Leu Phe Trp Ala Leu Phe Ile Ser			
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Phe Val Leu Gly Thr Ala Tyr Ser Ile Asn Leu Pro Tyr Leu Arg Trp			
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Lys Arg Phe Ala Val Val Ala Ala Leu Cys Ile Leu Ala Val Arg Ala			
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gtg att gtt cag ctg gcc ttt ttt ctc cac att cag act ttt gtt ttc			821
Val Ile Val Gln Leu Ala Phe Phe Leu His Ile Gln Thr Phe Val Phe			
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agg aga ccg gca gtg ttt tct agg cca tta tta ttt gca act gga ttt			869
Arg Arg Pro Ala Val Phe Ser Arg Pro Leu Leu Phe Ala Thr Gly Phe			
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300 305 310 315	

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Gly Gln Lys Lys Val Phe Trp Ile Cys Val Gly Leu Leu Glu Met Ala	
320 325 330	

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Tyr Ser Val Ala Ile Leu Met Gly Ala Thr Ser Ser Cys Leu Trp Ser	
335 340 345	

aaa aca gca acc atc gct ggc cat tcc ata ctt gcc gcg atc cta tgg	1109
Lys Thr Ala Thr Ile Ala Gly His Ser Ile Leu Ala Ala Ile Leu Trp	
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Phe Tyr Met Phe Ile Trp Lys Leu Phe Tyr Ala Glu Tyr Leu Leu Ile	
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Pro Thr Leu His His His Gln Lys Phe Phe Glu Trp Lys Ser Ser Tyr	
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Cys Arg Ile Ser His Arg Ser Leu Asn Thr Ser Val Asn Ala Ser Gly	
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Gln Gln Leu Gln Ser Glu Pro Glu Thr His Asp Ser Thr Thr Ile Trp	
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Arg Ala Ile Ser Ser Ser Leu Asp Ala Phe Tyr Arg Phe Ser Arg Pro	
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His	Thr	Val	Ile	Gly	Thr	Ala	Leu	Ser	Ile	Val	Ser	Val	Ser	Leu	Leu
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305					310					315					320
Phe	Trp	Ile	Cys	Val	Gly	Leu	Leu	Glu	Met	Ala	Tyr	Ser	Val	Ala	Ile
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 Ile Gly Thr Thr Leu Ser Val Trp Ala Val Tyr Leu Leu Thr Ile Leu
 20 25 30

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 Gly Asp Gly Asn Ser Val Asn Ser Pro Ala Ser Leu Asp Leu Val Phe
 35 40 45

ggc gct tgg ctg gcc tgc ctg ttg ggt aat gtg tac att gtc ggc ctc 192
 Gly Ala Trp Leu Ala Cys Leu Leu Gly Asn Val Tyr Ile Val Gly Leu
 50 55 60

aac caa ttg tgg gat gtg gac att gac cgc atc aat aag ccg aat ttg 240
 Asn Gln Leu Trp Asp Val Asp Ile Asp Arg Ile Asn Lys Pro Asn Leu
 65 70 75 80

ccc cta gct aac gga gat ttt tct atc gcc cag ggc cgt tgg att gtg 288
 Pro Leu Ala Asn Gly Asp Phe Ser Ile Ala Gln Gly Arg Trp Ile Val
 85 90 95

gga ctt tgt ggc gtt gct tcc ttg gcg atc gcc tgg gga tta ggg cta Gly Leu Cys Gly Val Ala Ser Leu Ala Ile Ala Trp Gly Leu Gly Leu 100 105 110	336
tgg ctg ggg cta acg gtg ggc att agt ttg att att ggc acg gcc tat Trp Leu Gly Leu Thr Val Gly Ile Ser Leu Ile Ile Gly Thr Ala Tyr 115 120 125	384
tcg gtg ccg cca gtg agg tta aag cgc ttt tcc ctg ctg gcg gcc ctg Ser Val Pro Pro Val Arg Leu Lys Arg Phe Ser Leu Leu Ala Ala Leu 130 135 140	432
tgt att ctg acg gtg cgg gga att gtg gtt aac ttg ggc tta ttt tta Cys Ile Leu Thr Val Arg Gly Ile Val Val Asn Leu Gly Leu Phe Leu 145 150 155 160	480
ttt ttt aga att ggt tta ggt tat ccc ccc act tta ata acc ccc atc Phe Phe Arg Ile Gly Leu Gly Tyr Pro Pro Thr Leu Ile Thr Pro Ile 165 170 175	528
tgg gtt ttg act tta ttt atc tta gtt ttc acc gtg gcg atc gcc att Trp Val Leu Thr Leu Phe Ile Leu Val Phe Thr Val Ala Ile Ala Ile 180 185 190	576
ttt aaa gat gtg cca gat atg gaa ggc gat cgg caa ttt aag att caa Phe Lys Asp Val Pro Asp Met Glu Gly Asp Arg Gln Phe Lys Ile Gln 195 200 205	624
act tta act ttg caa atc ggc aaa caa aac gtt ttt cgg gga acc tta Thr Leu Thr Leu Gln Ile Gly Lys Gln Asn Val Phe Arg Gly Thr Leu 210 215 220	672
att tta ctc act ggt tgt tat tta gcc atg gca atc tgg ggc tta tgg Ile Leu Leu Thr Gly Cys Tyr Leu Ala Met Ala Ile Trp Gly Leu Trp 225 230 235 240	720
gcg gct atg cct tta aat act gct ttc ttg att gtt tcc cat ttg tgc Ala Ala Met Pro Leu Asn Thr Ala Phe Leu Ile Val Ser His Leu Cys 245 250 255	768
tta tta gcc tta ctc tgg tgg cgg agt cga gat gta cac tta gaa agc Leu Leu Ala Leu Leu Trp Trp Arg Ser Arg Asp Val His Leu Glu Ser 260 265 270	816
aaa acc gaa att gct agt ttt tat cag ttt att tgg aag cta ttt ttc Lys Thr Glu Ile Ala Ser Phe Tyr Gln Phe Ile Trp Lys Leu Phe Phe 275 280 285	864
tta gag tac ttg ctg tat ccc ttg gct ctg tgg tta cct aat ttt tct Leu Glu Tyr Leu Leu Tyr Pro Leu Ala Leu Trp Leu Pro Asn Phe Ser 290 295 300	912
aat act att ttt tag Asn Thr Ile Phe * 305	927

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 <212> PRT
 <213> Synechocystis

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 Gly Asp Gly Asn Ser Val Asn Ser Pro Ala Ser Leu Asp Leu Val Phe
 35 40 45
 Gly Ala Trp Leu Ala Cys Leu Leu Gly Asn Val Tyr Ile Val Gly Leu
 50 55 60
 Asn Gln Leu Trp Asp Val Asp Ile Asp Arg Ile Asn Lys Pro Asn Leu
 65 70 75 80
 Pro Leu Ala Asn Gly Asp Phe Ser Ile Ala Gln Gly Arg Trp Ile Val
 85 90 95
 Gly Leu Cys Gly Val Ala Ser Leu Ala Ile Ala Trp Gly Leu Gly Leu
 100 105 110
 Trp Leu Gly Leu Thr Val Gly Ile Ser Leu Ile Ile Gly Thr Ala Tyr
 115 120 125
 Ser Val Pro Pro Val Arg Leu Lys Arg Phe Ser Leu Leu Ala Ala Leu
 130 135 140
 Cys Ile Leu Thr Val Arg Gly Ile Val Val Asn Leu Gly Leu Phe Leu
 145 150 155 160
 Phe Phe Arg Ile Gly Leu Gly Tyr Pro Pro Thr Leu Ile Thr Pro Ile
 165 170 175
 Trp Val Leu Thr Leu Phe Ile Leu Val Phe Thr Val Ala Ile Ala Ile
 180 185 190
 Phe Lys Asp Val Pro Asp Met Glu Gly Asp Arg Gln Phe Lys Ile Gln
 195 200 205
 Thr Leu Thr Leu Gln Ile Gly Lys Gln Asn Val Phe Arg Gly Thr Leu
 210 215 220
 Ile Leu Leu Thr Gly Cys Tyr Leu Ala Met Ala Ile Trp Gly Leu Trp
 225 230 235 240
 Ala Ala Met Pro Leu Asn Thr Ala Phe Leu Ile Val Ser His Leu Cys
 245 250 255
 Leu Leu Ala Leu Leu Trp Trp Arg Ser Arg Asp Val His Leu Glu Ser
 260 265 270
 Lys Thr Glu Ile Ala Ser Phe Tyr Gln Phe Ile Trp Lys Leu Phe Phe
 275 280 285
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 290 295 300
 Asn Thr Ile Phe
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 <212> DNA
 <213> Zea mays

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Asp Asp Phe Thr	
1	
ttg ata gct ata tgg gga ttt ctc gag gct ttg gcc gcc gca tta tgt	165
Leu Ile Ala Ile Trp Gly Phe Leu Glu Ala Leu Ala Ala Ala Leu Cys	
5 10 15 20	
atg aac gtt tat gta gta ggg ctg aac aag gtc aat aag cca acc ctc	213
Met Asn Val Tyr Val Val Gly Leu Asn Lys Val Asn Lys Pro Thr Leu	
25 30 35	
cca tta tcg ttc gga gag ttt tca atg cca act gca gta ttg tta gta	261
Pro Leu Ser Phe Gly Glu Phe Ser Met Pro Thr Ala Val Leu Leu Val	
40 45 50	
gtg gca ttc ttg gtc atg agc att agc atc gga ata aga tca aag tct	309
Val Ala Phe Leu Val Met Ser Ile Ser Ile Gly Ile Arg Ser Lys Ser	
55 60 65	
gct cca ttg atg tgt gct ttg ctt gtt tgc ttc ctt ctt gga agc gca	357
Ala Pro Leu Met Cys Ala Leu Leu Val Cys Phe Leu Leu Gly Ser Ala	
70 75 80	
tac ccc att gac gtc cca tta ctc cgg tgg aag cga cat gct ttt cta	405
Tyr Pro Ile Asp Val Pro Leu Leu Arg Trp Lys Arg His Ala Phe Leu	
85 90 95 100	
gct gca ttc tgc ata atc ttt gtg agg cct gta gtg gtc cag tta gct	453
Ala Ala Phe Cys Ile Ile Phe Val Arg Pro Val Val Val Gln Leu Ala	
105 110 115	
ttc ttt gca cac atg cag caa cat gtt ctg aag agg ccc ttg gca cct	501
Phe Phe Ala His Met Gln Gln His Val Leu Lys Arg Pro Leu Ala Pro	
120 125 130	
aca agg tcg gtg gtc ttt gca aca tgt ttc atg tgt tgc ttc gct gca	549
Thr Arg Ser Val Val Phe Ala Thr Cys Phe Met Cys Cys Phe Ala Ala	
135 140 145	
gta ata gcg cta ttc aag gat att cct gat gtc gat gga gat aga gat	597
Val Ile Ala Leu Phe Lys Asp Ile Pro Asp Val Asp Gly Asp Arg Asp	
150 155 160	
ttc ggc att cag tcc atg act gta cga tta ggc caa cag aga gtg cat	645
Phe Gly Ile Gln Ser Met Thr Val Arg Leu Gly Gln Gln Arg Val His	
165 170 175 180	
agg ctc tgc att aat att ctc atg aca gca tac gca gcc gca att ttg	693
Arg Leu Cys Ile Asn Ile Leu Met Thr Ala Tyr Ala Ala Ala Ile Leu	
185 190 195	
gta ggc gcg tca tct acg aac ctg tat cag aag att gtc att gtg tct	741
Val Gly Ala Ser Ser Thr Asn Leu Tyr Gln Lys Ile Val Ile Val Ser	
200 205 210	
ggg cat ggc ttg ctt gcc tcc aca ctc tgg caa aga gca caa caa ttt	789

Gly	His	Gly	Leu	Leu	Ala	Ser	Thr	Leu	Trp	Gln	Arg	Ala	Gln	Gln	Phe		
		215					220					225					
gac	att	gag	aat	aag	gat	tgt	atc	aca	caa	ttt	tat	atg	ttc	att	tgg		837
Asp	Ile	Glu	Asn	Lys	Asp	Cys	Ile	Thr	Gln	Phe	Tyr	Met	Phe	Ile	Trp		
	230					235					240						
aag	tta	ttc	tac	gcc	gag	tat	ttt	ctt	ata	cca	ttt	gtg	tag				879
Lys	Leu	Phe	Tyr	Ala	Glu	Tyr	Phe	Leu	Ile	Pro	Phe	Val	*				
245					250					255							
taaagaatca	tgcgaagaac	aacacccctg	ctatagacat	gtgaagggtt	attgcta	atg											939
ttactctacc	ccctgctata	gacatgtgaa	ggtttattgc	taatgttact	ctaccgaatg												999
gtctgaatgt	ctatgctgca	tttgaatgta	atatgactat	ttgttgatc	agggttaacaa												1059
ctggagcaaa	tgtaccatgt	atattaagca	ttaatttaac	tgcacatctt	gtaccatgta												1119
tattatgact	atgtatgaga	tattgtctct	tattagtact	ggatgtgatg	tgtcttatta												1179
tgactatgga	tgagactttt	gtgatgtaat	tgatgagact	atggttttaa	atattgttat												1239
gtgattgtgt	gtgagataaa	aaaaaaaaaa	aaaaaaaaaa														1278
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Ala	Ala	Leu	Cys	Met	Asn	Val	Tyr	Val	Val	Gly	Leu	Asn	Lys	Val	Asn		
			20					25					30				
Lys	Pro	Thr	Leu	Pro	Leu	Ser	Phe	Gly	Glu	Phe	Ser	Met	Pro	Thr	Ala		
		35				40						45					
Val	Leu	Leu	Val	Val	Ala	Phe	Leu	Val	Met	Ser	Ile	Ser	Ile	Gly	Ile		
	50				55						60						
Arg	Ser	Lys	Ser	Ala	Pro	Leu	Met	Cys	Ala	Leu	Leu	Val	Cys	Phe	Leu		
65				70					75						80		
Leu	Gly	Ser	Ala	Tyr	Pro	Ile	Asp	Val	Pro	Leu	Leu	Arg	Trp	Lys	Arg		
			85					90						95			
His	Ala	Phe	Leu	Ala	Ala	Phe	Cys	Ile	Ile	Phe	Val	Arg	Pro	Val	Val		
			100			105							110				
Val	Gln	Leu	Ala	Phe	Phe	Ala	His	Met	Gln	Gln	His	Val	Leu	Lys	Arg		
	115				120							125					
Pro	Leu	Ala	Pro	Thr	Arg	Ser	Val	Val	Phe	Ala	Thr	Cys	Phe	Met	Cys		
	130				135						140						
Cys	Phe	Ala	Ala	Val	Ile	Ala	Leu	Phe	Lys	Asp	Ile	Pro	Asp	Val	Asp		
145				150					155					160			
Gly	Asp	Arg	Asp	Phe	Gly	Ile	Gln	Ser	Met	Thr	Val	Arg	Leu	Gly	Gln		
			165					170						175			
Gln	Arg	Val	His	Arg	Leu	Cys	Ile	Asn	Ile	Leu	Met	Thr	Ala	Tyr	Ala		
		180				185							190				
Ala	Ala	Ile	Leu	Val	Gly	Ala	Ser	Ser	Thr	Asn	Leu	Tyr	Gln	Lys	Ile		
	195				200							205					
Val	Ile	Val	Ser	Gly	His	Gly	Leu	Leu	Ala	Ser	Thr	Leu	Trp	Gln	Arg		
	210				215						220						
Ala	Gln	Gln	Phe	Asp	Ile	Glu	Asn	Lys	Asp	Cys	Ile	Thr	Gln	Phe	Tyr		
225				230					235						240		
Met	Phe	Ile	Trp	Lys	Leu	Phe	Tyr	Ala	Glu	Tyr	Phe	Leu	Ile	Pro	Phe		
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Val																	

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 <222> (1)...(1149)

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 Pro Arg Val Arg Ala Ser Leu Pro Leu Pro Pro Ser Thr Ala Val Thr
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 gct cgc ttc ctc gcc gcc ccc gcc atc cgc gtg atc agc cca tcg agg 96
 Ala Arg Phe Leu Ala Ala Pro Ala Ile Arg Val Ile Ser Pro Ser Arg
 20 25 30
 ccc gcg ctg ccg ctc ctc tca tcc gcc tcc gca ggc ggc ttc cct cac 144
 Pro Ala Leu Pro Leu Leu Ser Ser Ala Ser Ala Gly Gly Phe Pro His
 35 40 45
 gcc tct cgc gct ccc tgc agt gcc gcc cgc gag cac cgc cgc ggc acc 192
 Ala Ser Arg Ala Pro Cys Ser Ala Ala Arg Glu His Arg Arg Gly Thr
 50 55 60
 gtg cgg gaa tgc tct cga gct gat gct gct gga gca gct cca tta tca 240
 Val Arg Glu Cys Ser Arg Ala Asp Ala Ala Gly Ala Ala Pro Leu Ser
 65 70 75 80
 aag aca ctg tta gac ctc aag gat tcc tgc tgg aga ttt tta agg cca 288
 Lys Thr Leu Leu Asp Leu Lys Asp Ser Cys Trp Arg Phe Leu Arg Pro
 85 90 95
 cat aca atc cga gga act gct tta gga tcc ata gca ttg gtt gcg aga 336
 His Thr Ile Arg Gly Thr Ala Leu Gly Ser Ile Ala Leu Val Ala Arg
 100 105 110
 gcc ttg ata gag aat tcc cat ctg ata aac tgg tgg ttg ata ttc aaa 384
 Ala Leu Ile Glu Asn Ser His Leu Ile Asn Trp Trp Leu Ile Phe Lys
 115 120 125
 gca ttc tat gga ctt ggg gca ttg ata ttt ggc aat ggt tac ata gtt 432
 Ala Phe Tyr Gly Leu Gly Ala Leu Ile Phe Gly Asn Gly Tyr Ile Val
 130 135 140
 ggg att aat cag atc tat gat gtt gct att gac aag gta aac aag cca 480
 Gly Ile Asn Gln Ile Tyr Asp Val Ala Ile Asp Lys Val Asn Lys Pro
 145 150 155 160
 tat tta ccc att gct gct ggt gat ctc tca att cag tca gca tgg ttg 528
 Tyr Leu Pro Ile Ala Ala Gly Asp Leu Ser Ile Gln Ser Ala Trp Leu
 165 170 175
 ttg gtg ata tta ttt gca gct gca ggt ttt tca att gtt ata tca aac 576

Leu Val Ile Leu Phe Ala Ala Ala Gly Phe Ser Ile Val Ile Ser Asn	
180 185 190	
ttt gga cct ttc att acc tct cta tac tgc ctt ggc cta ttt ctt ggc	624
Phe Gly Pro Phe Ile Thr Ser Leu Tyr Cys Leu Gly Leu Phe Leu Gly	
195 200 205	
act ata tat tct gtt cct cca ttt aga ctg aag aga tat ccg gtt gct	672
Thr Ile Tyr Ser Val Pro Pro Phe Arg Leu Lys Arg Tyr Pro Val Ala	
210 215 220	
gct ttt ctt atc att gca acg gtt cgt ggt ttc ctt ctc aac ttt ggc	720
Ala Phe Leu Ile Ile Ala Thr Val Arg Gly Phe Leu Leu Asn Phe Gly	
225 230 235 240	
gtg tac tat gct act agg gct gca cta ggt ctt aca ttc caa tgg agc	768
Val Tyr Tyr Ala Thr Arg Ala Ala Leu Gly Leu Thr Phe Gln Trp Ser	
245 250 255	
tcc cct gtt gct ttc att aca tgc ttc gtg aca cta ttt gct ttg gtc	816
Ser Pro Val Ala Phe Ile Thr Cys Phe Val Thr Leu Phe Ala Leu Val	
260 265 270	
att gct ata acc aaa gat ctc cct gat gtt gaa gga gat cgc aag tat	864
Ile Ala Ile Thr Lys Asp Leu Pro Asp Val Glu Gly Asp Arg Lys Tyr	
275 280 285	
caa ata tca act ttg gca aca aag ctt ggt gtc aga aat att gca ttc	912
Gln Ile Ser Thr Leu Ala Thr Lys Leu Gly Val Arg Asn Ile Ala Phe	
290 295 300	
ctt gga tct ggt tta tta tta gca aac tat att gct gct att gct gta	960
Leu Gly Ser Gly Leu Leu Leu Ala Asn Tyr Ile Ala Ala Ile Ala Val	
305 310 315 320	
gct ttt acc atg cct cag gat ttc agg tgc act gta atg gtt cct gtg	1008
Ala Phe Thr Met Pro Gln Asp Phe Arg Cys Thr Val Met Val Pro Val	
325 330 335	
cat gct gtc ctt gct ggt ggt tta att ttc cag aca tgg gtt ctg gag	1056
His Ala Val Leu Ala Gly Gly Leu Ile Phe Gln Thr Trp Val Leu Glu	
340 345 350	
caa gcg aag tac aga aag gat gct att tcg cag tac tat cgg ttc ata	1104
Gln Ala Lys Tyr Arg Lys Asp Ala Ile Ser Gln Tyr Tyr Arg Phe Ile	
355 360 365	
tgg aat ctc ttc tat gct gaa tat atc ttc ttc ccg tta ata tag	1149
Trp Asn Leu Phe Tyr Ala Glu Tyr Ile Phe Phe Pro Leu Ile *	
370 375 380	
agagatcttg tagttcatct tgatcttggg ctacagccta attcatggga gcaaatgaaa	1209
agagggagaa gttggcaaag tgaggtctgt tgtgcatatt ttcaacggaa acaatggagt	1269
agcaatattg ctatgctagg gttctgaagt tgtaggagct tttcgaagct tttacgatgt	1329
tgaaggcggt gttgttggag ctgtggaagc tgtttttctt tttttccttt tgtatcaaca	1389
gtgtcgcggt ctgtacggtc ttacttggaa gtgctttgac ctttgaacac atgggttgaa	1449
gcttgagatc tgggtcccga cagatggcgg tggaacggcc aagacaagct tgtttcatgc	1509
cactcgaggt cgaggctaaa ccactacggc gtgctcttcc atgaaacgca gaaaactagg	1569

gaaatgacta tatatatggt gcaatacgtt gtatatatttc tgagtttcag ctcgtatata	1629
tagtaggaac ctcaactttt accccatcga ttggaagact gaaacttctt gcatgcgtat	1689
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 <212> PRT
 <213> Zea mays

<400> 14

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			20					25					30		
Pro	Ala	Leu	Pro	Leu	Leu	Ser	Ser	Ala	Ser	Ala	Gly	Gly	Phe	Pro	His
		35					40					45			
Ala	Ser	Arg	Ala	Pro	Cys	Ser	Ala	Ala	Arg	Glu	His	Arg	Arg	Gly	Thr
	50					55					60				
Val	Arg	Glu	Cys	Ser	Arg	Ala	Asp	Ala	Ala	Gly	Ala	Ala	Pro	Leu	Ser
65					70					75					80
Lys	Thr	Leu	Leu	Asp	Leu	Lys	Asp	Ser	Cys	Trp	Arg	Phe	Leu	Arg	Pro
				85					90					95	
His	Thr	Ile	Arg	Gly	Thr	Ala	Leu	Gly	Ser	Ile	Ala	Leu	Val	Ala	Arg
			100					105					110		
Ala	Leu	Ile	Glu	Asn	Ser	His	Leu	Ile	Asn	Trp	Trp	Leu	Ile	Phe	Lys
		115					120					125			
Ala	Phe	Tyr	Gly	Leu	Gly	Ala	Leu	Ile	Phe	Gly	Asn	Gly	Tyr	Ile	Val
	130					135					140				
Gly	Ile	Asn	Gln	Ile	Tyr	Asp	Val	Ala	Ile	Asp	Lys	Val	Asn	Lys	Pro
145					150					155					160
Tyr	Leu	Pro	Ile	Ala	Ala	Gly	Asp	Leu	Ser	Ile	Gln	Ser	Ala	Trp	Leu
				165					170					175	
Leu	Val	Ile	Leu	Phe	Ala	Ala	Ala	Gly	Phe	Ser	Ile	Val	Ile	Ser	Asn
			180					185					190		
Phe	Gly	Pro	Phe	Ile	Thr	Ser	Leu	Tyr	Cys	Leu	Gly	Leu	Phe	Leu	Gly
		195					200					205			
Thr	Ile	Tyr	Ser	Val	Pro	Pro	Phe	Arg	Leu	Lys	Arg	Tyr	Pro	Val	Ala
	210					215					220				
Ala	Phe	Leu	Ile	Ile	Ala	Thr	Val	Arg	Gly	Phe	Leu	Leu	Asn	Phe	Gly
225					230					235					240
Val	Tyr	Tyr	Ala	Thr	Arg	Ala	Ala	Leu	Gly	Leu	Thr	Phe	Gln	Trp	Ser
				245					250					255	
Ser	Pro	Val	Ala	Phe	Ile	Thr	Cys	Phe	Val	Thr	Leu	Phe	Ala	Leu	Val
			260					265					270		
Ile	Ala	Ile	Thr	Lys	Asp	Leu	Pro	Asp	Val	Glu	Gly	Asp	Arg	Lys	Tyr
		275					280					285			
Gln	Ile	Ser	Thr	Leu	Ala	Thr	Lys	Leu	Gly	Val	Arg	Asn	Ile	Ala	Phe
	290					295					300				
Leu	Gly	Ser	Gly	Leu	Leu	Leu	Ala	Asn	Tyr	Ile	Ala	Ala	Ile	Ala	Val
305					310					315					320
Ala	Phe	Thr	Met	Pro	Gln	Asp	Phe	Arg	Cys	Thr	Val	Met	Val	Pro	Val
				325					330					335	
His	Ala	Val	Leu	Ala	Gly	Gly	Leu	Ile	Phe	Gln	Thr	Trp	Val	Leu	Glu
			340					345					350		
Gln	Ala	Lys	Tyr	Arg	Lys	Asp	Ala	Ile	Ser	Gln	Tyr	Tyr	Arg	Phe	Ile
		355					360					365			
Trp	Asn	Leu	Phe	Tyr	Ala	Glu	Tyr	Ile	Phe	Phe	Pro	Leu	Ile		

370

375

380

<210> 15

<211> 1618

<212> DNA

<213> Oryza sativa

<220>

<221> CDS

<222> (59)...(1273)

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Met Asp Ser Leu Arg Leu Arg Pro Ser Leu Leu Ala Ala Arg Ala Pro	
1 5 10 15	
ggc gcg gcc tcg ctg ccg cct ctc cgg cga gat cac ttt cta cca cct	154
Gly Ala Ala Ser Leu Pro Pro Leu Arg Arg Asp His Phe Leu Pro Pro	
20 25 30	
tta tgt tct atc cat aga aat ggt aaa cgg cca gtt tct ttg tcc agc	202
Leu Cys Ser Ile His Arg Asn Gly Lys Arg Pro Val Ser Leu Ser Ser	
35 40 45	
caa agg acc caa ggt cct tcc ttc gat caa tgt cag aaa ttc ttt ggt	250
Gln Arg Thr Gln Gly Pro Ser Phe Asp Gln Cys Gln Lys Phe Phe Gly	
50 55 60	
tgg aaa tcc tcc cac cac agg ata cca cat cga cca aca tct agt tcc	298
Trp Lys Ser Ser His His Arg Ile Pro His Arg Pro Thr Ser Ser Ser	
65 70 75 80	
gct gac gct tcg gga caa cct cta caa tct tca gct gaa gca cat gat	346
Ala Asp Ala Ser Gly Gln Pro Leu Gln Ser Ser Ala Glu Ala His Asp	
85 90 95	
tca tca agt ata tgg aag cca ata tca tct tct ccg gat gca ttt tac	394
Ser Ser Ser Ile Trp Lys Pro Ile Ser Ser Ser Pro Asp Ala Phe Tyr	
100 105 110	
agg ttt tct cgg cca cat act gtc ata gga aca gca ctt agc ata gtc	442
Arg Phe Ser Arg Pro His Thr Val Ile Gly Thr Ala Leu Ser Ile Val	
115 120 125	
tca gtt tcg ctg cta gct gtt gag aat ttg tcc gat gtg tct ccc ttg	490
Ser Val Ser Leu Leu Ala Val Glu Asn Leu Ser Asp Val Ser Pro Leu	
130 135 140	
ttc ctc act ggt ttg ctg gag gca gtg gta gca gct ctt ttc atg aac	538
Phe Leu Thr Gly Leu Leu Glu Ala Val Val Ala Ala Leu Phe Met Asn	
145 150 155 160	
atc tat atc gtt gga ttg aat cag ttg ttc gac att gag ata gat aag	586
Ile Tyr Ile Val Gly Leu Asn Gln Leu Phe Asp Ile Glu Ile Asp Lys	
165 170 175	

gtt aac aag cca act ctt cca tta gca tct ggg gaa tat tct cct gca Val Asn Lys Pro Thr Leu Pro Leu Ala Ser Gly Glu Tyr Ser Pro Ala 180 185 190	634
act gga gtt gca ctt gta tca gcc ttc gct gct atg agc ttt ggc ctt Thr Gly Val Ala Leu Val Ser Ala Phe Ala Ala Met Ser Phe Gly Leu 195 200 205	682
gga tgg gct gtt gga tca cag cct ctg ttc ctg gct ctt ttc att agc Gly Trp Ala Val Gly Ser Gln Pro Leu Phe Leu Ala Leu Phe Ile Ser 210 215 220	730
ttt att ctt gga aca gca tat tcg att aat ctg cca ttc ctg aga tgg Phe Ile Leu Gly Thr Ala Tyr Ser Ile Asn Leu Pro Phe Leu Arg Trp 225 230 235 240	778
aag aga tct gct gtt gtt gca gca ctt tgc ata tta gca gtc cgt gca Lys Arg Ser Ala Val Val Ala Ala Leu Cys Ile Leu Ala Val Arg Ala 245 250 255	826
gtg att gtt cag ctg gca ttt ttt ctc cac att cag aca ttc gta ttc Val Ile Val Gln Leu Ala Phe Phe Leu His Ile Gln Thr Phe Val Phe 260 265 270	874
aga aga cca gca gtc ttt acc agg cca ttg att ttt gca act gca ttc Arg Arg Pro Ala Val Phe Thr Arg Pro Leu Ile Phe Ala Thr Ala Phe 275 280 285	922
atg acc ttt ttc tcc gtt gta ata gca ttg ttc aag gat ata cct gat Met Thr Phe Phe Ser Val Val Ile Ala Leu Phe Lys Asp Ile Pro Asp 290 295 300	970
att gaa gga gac cgt att ttt ggt atc aaa tct ttc agt gtt cga tta Ile Glu Gly Asp Arg Ile Phe Gly Ile Lys Ser Phe Ser Val Arg Leu 305 310 315 320	1018
ggt caa aag aag gtt ttc tgg att tgt gtt ggt ctg ctc gag atg gct Gly Gln Lys Lys Val Phe Trp Ile Cys Val Gly Leu Leu Glu Met Ala 325 330 335	1066
tat tgt gtt gca ata ttg atg gga gct act tct gcc tgt ttg tgg agc Tyr Cys Val Ala Ile Leu Met Gly Ala Thr Ser Ala Cys Leu Trp Ser 340 345 350	1114
aaa tac gca act gtg gtg gga cat gca atc ctt gcg gca atc cta tgg Lys Tyr Ala Thr Val Val Gly His Ala Ile Leu Ala Ala Ile Leu Trp 355 360 365	1162
aac cgc tca cgg tcg att gat ctg aca agc aaa act gca atc act tct Asn Arg Ser Arg Ser Ile Asp Leu Thr Ser Lys Thr Ala Ile Thr Ser 370 375 380	1210
ttc tac atg ttt atc tgg aag ctg ttc tac gcg gaa tac ctt ctc att Phe Tyr Met Phe Ile Trp Lys Leu Phe Tyr Ala Glu Tyr Leu Leu Ile 385 390 395 400	1258
cct ctt gta agg tga caaaggcgat tactccaggt agattggaat tggatcatgg Pro Leu Val Arg *	1313

ctggatggat	gaacggacgg	cgccccataa	aatcacctgc	aaatcacccg	gtacacatgt	1373
tgacatcctg	catccagata	tgatattgat	agatcatcgt	cggcaccatc	attcctctga	1433
aagatttcgc	acggcatttc	aacctccaac	tcccaacgta	ccccaaaaaa	agtaactagg	1493
ccaggtgagc	atctgctagc	ctatagtaga	cgttattgga	acagtggtag	tacttgttag	1553
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aaaaa						1618

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 <211> 404
 <212> PRT
 <213> *Oryza sativa*

<400> 16

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Gly	Ala	Ala	Ser	Leu	Pro	Pro	Leu	Arg	Arg	Asp	His	Phe	Leu	Pro	Pro
			20					25					30		
Leu	Cys	Ser	Ile	His	Arg	Asn	Gly	Lys	Arg	Pro	Val	Ser	Leu	Ser	Ser
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Gln	Arg	Thr	Gln	Gly	Pro	Ser	Phe	Asp	Gln	Cys	Gln	Lys	Phe	Phe	Gly
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Trp	Lys	Ser	Ser	His	His	Arg	Ile	Pro	His	Arg	Pro	Thr	Ser	Ser	Ser
65					70					75					80
Ala	Asp	Ala	Ser	Gly	Gln	Pro	Leu	Gln	Ser	Ser	Ala	Glu	Ala	His	Asp
				85				90						95	
Ser	Ser	Ser	Ile	Trp	Lys	Pro	Ile	Ser	Ser	Ser	Pro	Asp	Ala	Phe	Tyr
			100					105					110		
Arg	Phe	Ser	Arg	Pro	His	Thr	Val	Ile	Gly	Thr	Ala	Leu	Ser	Ile	Val
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Ser	Val	Ser	Leu	Leu	Ala	Val	Glu	Asn	Leu	Ser	Asp	Val	Ser	Pro	Leu
	130					135					140				
Phe	Leu	Thr	Gly	Leu	Leu	Glu	Ala	Val	Val	Ala	Ala	Leu	Phe	Met	Asn
145					150					155					160
Ile	Tyr	Ile	Val	Gly	Leu	Asn	Gln	Leu	Phe	Asp	Ile	Glu	Ile	Asp	Lys
			165					170						175	
Val	Asn	Lys	Pro	Thr	Leu	Pro	Leu	Ala	Ser	Gly	Glu	Tyr	Ser	Pro	Ala
			180					185					190		
Thr	Gly	Val	Ala	Leu	Val	Ser	Ala	Phe	Ala	Ala	Met	Ser	Phe	Gly	Leu
		195					200					205			
Gly	Trp	Ala	Val	Gly	Ser	Gln	Pro	Leu	Phe	Leu	Ala	Leu	Phe	Ile	Ser
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Phe	Ile	Leu	Gly	Thr	Ala	Tyr	Ser	Ile	Asn	Leu	Pro	Phe	Leu	Arg	Trp
225					230					235					240
Lys	Arg	Ser	Ala	Val	Val	Ala	Ala	Leu	Cys	Ile	Leu	Ala	Val	Arg	Ala
			245					250						255	
Val	Ile	Val	Gln	Leu	Ala	Phe	Phe	Leu	His	Ile	Gln	Thr	Phe	Val	Phe
			260					265					270		
Arg	Arg	Pro	Ala	Val	Phe	Thr	Arg	Pro	Leu	Ile	Phe	Ala	Thr	Ala	Phe
		275					280					285			
Met	Thr	Phe	Phe	Ser	Val	Val	Ile	Ala	Leu	Phe	Lys	Asp	Ile	Pro	Asp
	290					295					300				
Ile	Glu	Gly	Asp	Arg	Ile	Phe	Gly	Ile	Lys	Ser	Phe	Ser	Val	Arg	Leu
305					310					315					320
Gly	Gln	Lys	Lys	Val	Phe	Trp	Ile	Cys	Val	Gly	Leu	Leu	Glu	Met	Ala
			325					330						335	
Tyr	Cys	Val	Ala	Ile	Leu	Met	Gly	Ala	Thr	Ser	Ala	Cys	Leu	Trp	Ser

			340					345					350				
Lys	Tyr	Ala	Thr	Val	Val	Gly	His	Ala	Ile	Leu	Ala	Ala	Ile	Leu	Trp		
		355					360					365					
Asn	Arg	Ser	Arg	Ser	Ile	Asp	Leu	Thr	Ser	Lys	Thr	Ala	Ile	Thr	Ser		
	370					375					380						
Phe	Tyr	Met	Phe	Ile	Trp	Lys	Leu	Phe	Tyr	Ala	Glu	Tyr	Leu	Leu	Ile		
385					390					395					400		
Pro	Leu	Val	Arg														

<210> 17
 <211> 1733
 <212> DNA
 <213> Oryza Sativa

<220>
 <221> CDS
 <222> (1)...(1137)

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Leu	Thr	Leu	Ala	Ser	Pro	Pro	Leu	Pro	Cys	Arg	Ala	Ala	Ala	Thr	Ala		
1				5					10					15			
agc cgc agc ggg cgt cct gct ccg cgc ctc ctc ggc cct ccg ccg ccg																	96
Ser	Arg	Ser	Gly	Arg	Pro	Ala	Pro	Arg	Leu	Leu	Gly	Pro	Pro	Pro	Pro		
			20					25					30				
ccc gct tcc cct ctc ctc tcc tcc gct tcg gcg cgc ttc ccg cgt gcc																	144
Pro	Ala	Ser	Pro	Leu	Leu	Ser	Ser	Ala	Ser	Ala	Arg	Phe	Pro	Arg	Ala		
			35				40					45					
ccc tgc aac gcc gca cgc tgg agc cgg cgc gac gcc gtg cgg gtt tgc																	192
Pro	Cys	Asn	Ala	Ala	Arg	Trp	Ser	Arg	Arg	Asp	Ala	Val	Arg	Val	Cys		
	50					55				60							
tct caa gct ggt gca gct gga cca gcc cca tta tcg aag aca ttg tca																	240
Ser	Gln	Ala	Gly	Ala	Ala	Gly	Pro	Ala	Pro	Leu	Ser	Lys	Thr	Leu	Ser		
	65				70					75					80		
gac ctc aag gat tcc tgc tgg aga ttt tta cgg cca cat aca att cga																	288
Asp	Leu	Lys	Asp	Ser	Cys	Trp	Arg	Phe	Leu	Arg	Pro	His	Thr	Ile	Arg		
				85					90					95			
gga act gcc ttg gga tcc ata gca tta gtt gct aga gct ttg ata gag																	336
Gly	Thr	Ala	Leu	Gly	Ser	Ile	Ala	Leu	Val	Ala	Arg	Ala	Leu	Ile	Glu		
			100					105					110				
aac ccc caa ctg ata aat tgg tgg ttg gta ttc aaa gcg ttc tat ggg																	384
Asn	Pro	Gln	Leu	Ile	Asn	Trp	Trp	Leu	Val	Phe	Lys	Ala	Phe	Tyr	Gly		
		115				120						125					
ctc gtg gcg tta atc tgt ggc aat ggt tac atc gtt ggg atc aat cag																	432
Leu	Val	Ala	Leu	Ile	Cys	Gly	Asn	Gly	Tyr	Ile	Val	Gly	Ile	Asn	Gln		
	130					135					140						
atc tat gac att aga atc gat aag gta aac aag cca tat tta cca att																	480

Ile Tyr Asp Ile Arg Ile Asp Lys Val Asn Lys Pro Tyr Leu Pro Ile	
145 150 155 160	
gct gcc ggt gat ctc tca gtt cag aca gca tgg tta ttg gtg gta tta	528
Ala Ala Gly Asp Leu Ser Val Gln Thr Ala Trp Leu Leu Val Val Leu	
165 170 175	
ttt gca gct gcg gga ttt tca att gtt gtg aca aac ttt gga cct ttc	576
Phe Ala Ala Ala Gly Phe Ser Ile Val Val Thr Asn Phe Gly Pro Phe	
180 185 190	
att acc tct cta tat tgc ctt ggt cta ttt ctt ggc acc ata tac tct	624
Ile Thr Ser Leu Tyr Cys Leu Gly Leu Phe Leu Gly Thr Ile Tyr Ser	
195 200 205	
gtt cct cca ttc aga ctt aag aga tat cct gtt gct gct ttt ctt atc	672
Val Pro Pro Phe Arg Leu Lys Arg Tyr Pro Val Ala Ala Phe Leu Ile	
210 215 220	
att gca acg gtc cgt ggt ttt ctt ctc aac ttt ggt gtg tac tat gct	720
Ile Ala Thr Val Arg Gly Phe Leu Leu Asn Phe Gly Val Tyr Tyr Ala	
225 230 235 240	
act aga gca gca ctg ggt ctt aca ttc caa tgg agc tcg cct gtt gct	768
Thr Arg Ala Ala Leu Gly Leu Thr Phe Gln Trp Ser Ser Pro Val Ala	
245 250 255	
ttc att aca tgc ttc gtg act tta ttt gct ttg gtc att gct ata acc	816
Phe Ile Thr Cys Phe Val Thr Leu Phe Ala Leu Val Ile Ala Ile Thr	
260 265 270	
aaa gat ctc cca gat gtt gaa ggg gat cgg aag tat caa ata tca act	864
Lys Asp Leu Pro Asp Val Glu Gly Asp Arg Lys Tyr Gln Ile Ser Thr	
275 280 285	
ttg gcg aca aag ctc ggt gtc aga aac att gca ttt ctt ggc tct ggt	912
Leu Ala Thr Lys Leu Gly Val Arg Asn Ile Ala Phe Leu Gly Ser Gly	
290 295 300	
tta ttg ata gca aat tat gtt gct gct att gct gta gct ttt ctc atg	960
Leu Leu Ile Ala Asn Tyr Val Ala Ala Ile Ala Val Ala Phe Leu Met	
305 310 315 320	
cct cag gct ttc agg cgc act gta atg gtg cct gtg cat gct gcc ctt	1008
Pro Gln Ala Phe Arg Arg Thr Val Met Val Pro Val His Ala Ala Leu	
325 330 335	
gcc gtt ggt ata att ttc cag aca tgg gtt ctg gag caa gca aaa tat	1056
Ala Val Gly Ile Ile Phe Gln Thr Trp Val Leu Glu Gln Ala Lys Tyr	
340 345 350	
act aag gat gct att tca cag tac tac cgg ttc att tgg aat ctc ttc	1104
Thr Lys Asp Ala Ile Ser Gln Tyr Tyr Arg Phe Ile Trp Asn Leu Phe	
355 360 365	
tat gct gaa tac atc ttc ttc ccg ttg ata tag agaccaagca atctgatatg	1157
Tyr Ala Glu Tyr Ile Phe Phe Pro Leu Ile *	
370 375	

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gtctgcatgt tgagtgcggc aaaaactaga agcccatatg aacagtggga gtaagggaaac 1217
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<210> 18

<211> 378

<212> PRT

<213> Oryza Sativa

<400> 18

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20          25          30
Pro Ala Ser Pro Leu Leu Ser Ser Ala Ser Ala Arg Phe Pro Arg Ala
35          40          45
Pro Cys Asn Ala Ala Arg Trp Ser Arg Arg Asp Ala Val Arg Val Cys
50          55          60
Ser Gln Ala Gly Ala Ala Gly Pro Ala Pro Leu Ser Lys Thr Leu Ser
65          70          75          80
Asp Leu Lys Asp Ser Cys Trp Arg Phe Leu Arg Pro His Thr Ile Arg
85          90          95
Gly Thr Ala Leu Gly Ser Ile Ala Leu Val Ala Arg Ala Leu Ile Glu
100         105         110
Asn Pro Gln Leu Ile Asn Trp Trp Leu Val Phe Lys Ala Phe Tyr Gly
115         120         125
Leu Val Ala Leu Ile Cys Gly Asn Gly Tyr Ile Val Gly Ile Asn Gln
130         135         140
Ile Tyr Asp Ile Arg Ile Asp Lys Val Asn Lys Pro Tyr Leu Pro Ile
145         150         155         160
Ala Ala Gly Asp Leu Ser Val Gln Thr Ala Trp Leu Leu Val Val Leu
165         170         175
Phe Ala Ala Ala Gly Phe Ser Ile Val Val Thr Asn Phe Gly Pro Phe
180         185         190
Ile Thr Ser Leu Tyr Cys Leu Gly Leu Phe Leu Gly Thr Ile Tyr Ser
195         200         205
Val Pro Pro Phe Arg Leu Lys Arg Tyr Pro Val Ala Ala Phe Leu Ile
210         215         220
Ile Ala Thr Val Arg Gly Phe Leu Leu Asn Phe Gly Val Tyr Tyr Ala
225         230         235         240
Thr Arg Ala Ala Leu Gly Leu Thr Phe Gln Trp Ser Ser Pro Val Ala
245         250         255
Phe Ile Thr Cys Phe Val Thr Leu Phe Ala Leu Val Ile Ala Ile Thr
260         265         270
Lys Asp Leu Pro Asp Val Glu Gly Asp Arg Lys Tyr Gln Ile Ser Thr
275         280         285
Leu Ala Thr Lys Leu Gly Val Arg Asn Ile Ala Phe Leu Gly Ser Gly
290         295         300
Leu Leu Ile Ala Asn Tyr Val Ala Ala Ile Ala Val Ala Phe Leu Met
305         310         315         320

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Pro	Gln	Ala	Phe	Arg	Arg	Thr	Val	Met	Val	Pro	Val	His	Ala	Ala	Leu	
				325					330						335	
Ala	Val	Gly	Ile	Ile	Phe	Gln	Thr	Trp	Val	Leu	Glu	Gln	Ala	Lys	Tyr	
			340					345						350		
Thr	Lys	Asp	Ala	Ile	Ser	Gln	Tyr	Tyr	Arg	Phe	Ile	Trp	Asn	Leu	Phe	
		355					360					365				
Tyr	Ala	Glu	Tyr	Ile	Phe	Phe	Pro	Leu	Ile							
	370					375										

<210> 19
 <211> 1400
 <212> DNA
 <213> Glycine max

<220>
 <221> CDS
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cca act tca cat cgt gtt cct tcc aca att ccc act ttg aat ttc gct <div style="display: flex; justify-content: space-between; width: 100%;"> Pro Thr Ser His Arg Val Pro Ser Thr Ile Pro Thr Leu Asn Phe Ala 102 </div> <div style="display: flex; justify-content: space-between; width: 100%;"> 10 15 20 </div>															
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ttt tcc aaa cac ttc aac tca att ggg ttg aac cat cac agt tac aga <div style="display: flex; justify-content: space-between; width: 100%;"> Phe Ser Lys His Phe Asn Ser Ile Gly Leu Asn His His Ser Tyr Arg 198 </div> <div style="display: flex; justify-content: space-between; width: 100%;"> 40 45 50 </div>															
tgc tgc tca aat gct gtt cct aag aga ccc caa aga ccc agt tcc ata <div style="display: flex; justify-content: space-between; width: 100%;"> Cys Cys Ser Asn Ala Val Pro Lys Arg Pro Gln Arg Pro Ser Ser Ile 246 </div> <div style="display: flex; justify-content: space-between; width: 100%;"> 55 60 65 70 </div>															
agg gcc tgc act gga gtt gga gct gct ggt tct gat cgt cca tta gct <div style="display: flex; justify-content: space-between; width: 100%;"> Arg Ala Cys Thr Gly Val Gly Ala Ala Gly Ser Asp Arg Pro Leu Ala 294 </div> <div style="display: flex; justify-content: space-between; width: 100%;"> 75 80 85 </div>															
gaa aga ctt tta gat ttg aaa gat gct tgc tgg aga ttt tta agg cca <div style="display: flex; justify-content: space-between; width: 100%;"> Glu Arg Leu Leu Asp Leu Lys Asp Ala Cys Trp Arg Phe Leu Arg Pro 342 </div> <div style="display: flex; justify-content: space-between; width: 100%;"> 90 95 100 </div>															
cat act ata cgt ggt aca gca cta ggt tca ttt gct ttg gtg gca aga <div style="display: flex; justify-content: space-between; width: 100%;"> His Thr Ile Arg Gly Thr Ala Leu Gly Ser Phe Ala Leu Val Ala Arg 390 </div> <div style="display: flex; justify-content: space-between; width: 100%;"> 105 110 115 </div>															
gca ttg att gag aac acg aat ttg ata aag tgg tct ctt ttg ttc aaa <div style="display: flex; justify-content: space-between; width: 100%;"> Ala Leu Ile Glu Asn Thr Asn Leu Ile Lys Trp Ser Leu Leu Phe Lys 438 </div> <div style="display: flex; justify-content: space-between; width: 100%;"> 120 125 130 </div>															
gct ttc tct ggt ctt ttt gcc ctg att tgt ggg aat ggt tat ata gtt <div style="display: flex; justify-content: space-between; width: 100%;"> Ala Phe Ser Gly Leu Phe Ala Leu Ile Cys Gly Asn Gly Tyr Ile Val 486 </div>															

135	140	145	150	
ggc atc aat caa atc tat gac att agc att gac aag gta aac aaa cct Gly Ile Asn Gln Ile Tyr Asp Ile Ser Ile Asp Lys Val Asn Lys Pro	155	160	165	534
tat tta cct ata gct gct gga gat ctt tct gtc caa tct gca tgg ttc Tyr Leu Pro Ile Ala Ala Gly Asp Leu Ser Val Gln Ser Ala Trp Phe	170	175	180	582
ttg gtt ata ttt ttt gca gca gct ggc ctg tcg att gca ggg ttg aac Leu Val Ile Phe Phe Ala Ala Ala Gly Leu Ser Ile Ala Gly Leu Asn	185	190	195	630
ttt ggg cct ttc att ttt tct ctt tac aca ctt ggc ctt ttc ttg gga Phe Gly Pro Phe Ile Phe Ser Leu Tyr Thr Leu Gly Leu Phe Leu Gly	200	205	210	678
acc atc tat tct gtt cct cca ttg agg atg aaa cgc ttt cct gtt gca Thr Ile Tyr Ser Val Pro Pro Leu Arg Met Lys Arg Phe Pro Val Ala	215	220	225	726
gca ttt ctt ata att gcc acg gta cgt ggt ttt ctc ctt aac ttt ggt Ala Phe Leu Ile Ile Ala Thr Val Arg Gly Phe Leu Leu Asn Phe Gly	235	240	245	774
gtg tac tat gcc act aga gct tcc ctt ggg ctt gca ttt gaa tgg agc Val Tyr Tyr Ala Thr Arg Ala Ser Leu Gly Leu Ala Phe Glu Trp Ser	250	255	260	822
tct cct gtg gtt ttt atc aca aca ttt gta aca ttt ttc gca ctg gta Ser Pro Val Val Phe Ile Thr Thr Phe Val Thr Phe Phe Ala Leu Val	265	270	275	870
att gct ata aca aaa gat ctt cct gat gtt gaa ggt gat cgc aag tat Ile Ala Ile Thr Lys Asp Leu Pro Asp Val Glu Gly Asp Arg Lys Tyr	280	285	290	918
cag ata tca acc ttt gct aca aaa tta gga gtt cgg aac att gct ttc Gln Ile Ser Thr Phe Ala Thr Lys Leu Gly Val Arg Asn Ile Ala Phe	295	300	305	966
ctt ggt tct gga att ttg ctg gtg aat tat att gtt tct gtt ttg gca Leu Gly Ser Gly Ile Leu Leu Val Asn Tyr Ile Val Ser Val Leu Ala	315	320	325	1014
gca att tat atg cct cag gct ttc agg cgt tgg tta ctc ata cca gct Ala Ile Tyr Met Pro Gln Ala Phe Arg Arg Trp Leu Leu Ile Pro Ala	330	335	340	1062
cat aca att ttt gca ata agc ttg att tac cag gca cga ata tta gaa His Thr Ile Phe Ala Ile Ser Leu Ile Tyr Gln Ala Arg Ile Leu Glu	345	350	355	1110
caa gca aat tat acc aag gat gca ata tca gga ttc tat cga ttc ata Gln Ala Asn Tyr Thr Lys Asp Ala Ile Ser Gly Phe Tyr Arg Phe Ile	360	365	370	1158

tgg	aat	ctg	ttc	tat	gct	gag	tat	gca	ata	ttt	cct	ttc	ata	tag	1203
Trp	Asn	Leu	Phe	Tyr	Ala	Glu	Tyr	Ala	Ile	Phe	Pro	Phe	Ile	*	
375					380					385					

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gtttatcaag	tgtcaattgg	taaactagct	atcattattt	ttttaaaatg	agtattgttg	1323
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<210> 20
<211> 388
<212> PRT
<213> Glycine max
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			20					25					30		
Gln	Pro	Leu	Phe	Leu	Gly	Phe	Ser	Lys	His	Phe	Asn	Ser	Ile	Gly	Leu
		35					40					45			
Asn	His	His	Ser	Tyr	Arg	Cys	Cys	Ser	Asn	Ala	Val	Pro	Lys	Arg	Pro
	50					55					60				
Gln	Arg	Pro	Ser	Ser	Ile	Arg	Ala	Cys	Thr	Gly	Val	Gly	Ala	Ala	Gly
65					70					75					80
Ser	Asp	Arg	Pro	Leu	Ala	Glu	Arg	Leu	Leu	Asp	Leu	Lys	Asp	Ala	Cys
				85					90					95	
Trp	Arg	Phe	Leu	Arg	Pro	His	Thr	Ile	Arg	Gly	Thr	Ala	Leu	Gly	Ser
			100					105					110		
Phe	Ala	Leu	Val	Ala	Arg	Ala	Leu	Ile	Glu	Asn	Thr	Asn	Leu	Ile	Lys
		115					120					125			
Trp	Ser	Leu	Leu	Phe	Lys	Ala	Phe	Ser	Gly	Leu	Phe	Ala	Leu	Ile	Cys
	130					135					140				
Gly	Asn	Gly	Tyr	Ile	Val	Gly	Ile	Asn	Gln	Ile	Tyr	Asp	Ile	Ser	Ile
145					150					155					160
Asp	Lys	Val	Asn	Lys	Pro	Tyr	Leu	Pro	Ile	Ala	Ala	Gly	Asp	Leu	Ser
				165					170					175	
Val	Gln	Ser	Ala	Trp	Phe	Leu	Val	Ile	Phe	Phe	Ala	Ala	Ala	Gly	Leu
			180					185					190		
Ser	Ile	Ala	Gly	Leu	Asn	Phe	Gly	Pro	Phe	Ile	Phe	Ser	Leu	Tyr	Thr
		195					200					205			
Leu	Gly	Leu	Phe	Leu	Gly	Thr	Ile	Tyr	Ser	Val	Pro	Pro	Leu	Arg	Met
	210					215					220				
Lys	Arg	Phe	Pro	Val	Ala	Ala	Phe	Leu	Ile	Ile	Ala	Thr	Val	Arg	Gly
225					230					235					240
Phe	Leu	Leu	Asn	Phe	Gly	Val	Tyr	Tyr	Ala	Thr	Arg	Ala	Ser	Leu	Gly
				245					250					255	
Leu	Ala	Phe	Glu	Trp	Ser	Ser	Pro	Val	Val	Phe	Ile	Thr	Thr	Phe	Val
			260					265					270		
Thr	Phe	Phe	Ala	Leu	Val	Ile	Ala	Ile	Thr	Lys	Asp	Leu	Pro	Asp	Val
		275					280					285			
Glu	Gly	Asp	Arg	Lys	Tyr	Gln	Ile	Ser	Thr	Phe	Ala	Thr	Lys	Leu	Gly
	290					295					300				
Val	Arg	Asn	Ile	Ala	Phe	Leu	Gly	Ser	Gly	Ile	Leu	Leu	Val	Asn	Tyr
305					310					315					320
Ile	Val	Ser	Val	Leu	Ala	Ala	Ile	Tyr	Met	Pro	Gln	Ala	Phe	Arg	Arg
				325					330					335	
Trp	Leu	Leu	Ile	Pro	Ala	His	Thr	Ile	Phe	Ala	Ile	Ser	Leu	Ile	Tyr

			340					345					350				
Gln	Ala	Arg	Ile	Leu	Glu	Gln	Ala	Asn	Tyr	Thr	Lys	Asp	Ala	Ile	Ser		
		355					360					365					
Gly	Phe	Tyr	Arg	Phe	Ile	Trp	Asn	Leu	Phe	Tyr	Ala	Glu	Tyr	Ala	Ile		
	370					375					380						
Phe	Pro	Phe	Ile														
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aat att aac aac gct tct tct ctc gcc acc act ggt tct tat ttg cca	101
Asn Ile Asn Asn Ala Ser Ser Leu Ala Thr Thr Gly Ser Tyr Leu Pro	
15 20 25	
aat gct tca tgg cac aat agg aaa atc caa aaa gaa tat aat ttt ttg	149
Asn Ala Ser Trp His Asn Arg Lys Ile Gln Lys Glu Tyr Asn Phe Leu	
30 35 40	
agg ttt cgg tgg cca agt ttg aac cac cat tac aaa agc att gaa gga	197
Arg Phe Arg Trp Pro Ser Leu Asn His His Tyr Lys Ser Ile Glu Gly	
45 50 55	
ggg tgt aca tgt aaa aaa tgt aat ata aaa ttt gtt gtg aaa gcg acc	245
Gly Cys Thr Cys Lys Lys Cys Asn Ile Lys Phe Val Val Lys Ala Thr	
60 65 70	
tct gaa aaa tct ttt gag tct gaa cct caa gct ttt gat cca aaa agc	293
Ser Glu Lys Ser Phe Glu Ser Glu Pro Gln Ala Phe Asp Pro Lys Ser	
75 80 85 90	
att ttg gac tct gtc aag aat tcc ttg gat gct ttc tac agg ttt tcc	341
Ile Leu Asp Ser Val Lys Asn Ser Leu Asp Ala Phe Tyr Arg Phe Ser	
95 100 105	
aga cct cac aca gtt att ggc aca gca tta agc ata att tct gtg tcc	389
Arg Pro His Thr Val Ile Gly Thr Ala Leu Ser Ile Ile Ser Val Ser	
110 115 120	
ctc ctt gct gtt gag aaa ata tca gat ata tct cca tta ttt ttt act	437
Leu Leu Ala Val Glu Lys Ile Ser Asp Ile Ser Pro Leu Phe Phe Thr	
125 130 135	
ggt gtg ttg gag gct gtg gtt gct gcc ctg ttt atg aat att tat att	485
Gly Val Leu Glu Ala Val Val Ala Ala Leu Phe Met Asn Ile Tyr Ile	
140 145 150	

gtt ggt ttg aat caa ttg tct gat gtt gaa ata gac aag ata aac aag	533
Val Gly Leu Asn Gln Leu Ser Asp Val Glu Ile Asp Lys Ile Asn Lys	
155 160 165 170	
ccg tat ctt cca tta gca tct ggg gaa tat tcc ttt gaa act ggt gtc	581
Pro Tyr Leu Pro Leu Ala Ser Gly Glu Tyr Ser Phe Glu Thr Gly Val	
175 180 185	
act att gtt gca tct ttt tca att ctg agt ttt tgg ctt ggc tgg gtt	629
Thr Ile Val Ala Ser Phe Ser Ile Leu Ser Phe Trp Leu Gly Trp Val	
190 195 200	
gta ggt tca tgg cca tta ttt tgg gcc ctt ttt gta agc ttt gtg cta	677
Val Gly Ser Trp Pro Leu Phe Trp Ala Leu Phe Val Ser Phe Val Leu	
205 210 215	
gga act gct tat tca atc aat gtg cct ctg ttg aga tgg aag agg ttt	725
Gly Thr Ala Tyr Ser Ile Asn Val Pro Leu Leu Arg Trp Lys Arg Phe	
220 225 230	
gca gtg ctt gca gcg atg tgc att cta gct gtt cgg gca gta ata gtt	773
Ala Val Leu Ala Ala Met Cys Ile Leu Ala Val Arg Ala Val Ile Val	
235 240 245 250	
caa ctt gca ttt ttc ctt cac atc cag act cat gta tac aag agg cca	821
Gln Leu Ala Phe Phe Leu His Ile Gln Thr His Val Tyr Lys Arg Pro	
255 260 265	
cct gtc ttt tca aga tca ttg att ttt gct act gca ttc atg agc ttc	869
Pro Val Phe Ser Arg Ser Leu Ile Phe Ala Thr Ala Phe Met Ser Phe	
270 275 280	
ttc tct gta gtt ata gca ctg ttt aag gat ata cct gac att gaa gga	917
Phe Ser Val Val Ile Ala Leu Phe Lys Asp Ile Pro Asp Ile Glu Gly	
285 290 295	
gat aaa gta ttt ggc atc caa tct ttt tca gtg cgt tta ggt cag aag	965
Asp Lys Val Phe Gly Ile Gln Ser Phe Ser Val Arg Leu Gly Gln Lys	
300 305 310	
ccg gta ttc tgg act tgt gtt atc ctt ctt gaa ata gct tat gga gtc	1013
Pro Val Phe Trp Thr Cys Val Ile Leu Leu Glu Ile Ala Tyr Gly Val	
315 320 325 330	
gcc ctc ctg gtg gga gct gca tct cct tgt ctt tgg agc aaa att gtc	1061
Ala Leu Leu Val Gly Ala Ala Ser Pro Cys Leu Trp Ser Lys Ile Val	
335 340 345	
acg ggt ctg gga cac gct gtt ctg gct tca att ctc tgg ttt cat gcc	1109
Thr Gly Leu Gly His Ala Val Leu Ala Ser Ile Leu Trp Phe His Ala	
350 355 360	
aaa tct gta gat ttg aaa agc aaa gct tcg ata aca tcc ttc tat atg	1157
Lys Ser Val Asp Leu Lys Ser Lys Ala Ser Ile Thr Ser Phe Tyr Met	
365 370 375	
ttt att tgg aag cta ttt tat gca gaa tac tta ctc att cct ttt gtt	1205

Phe Ile Trp Lys Leu Phe Tyr Ala Glu Tyr Leu Leu Ile Pro Phe Val
 380 385 390

aga tga ggatgcagcg gcaatattga cttgagaatt agttttgttt aaatgggtgct 1261
 Arg *
 395

gcctttgtca caggccggct tggagtcgct acattagttt taagttttta attgctaatt 1321
 taaatgaaga tatatttctt ttgggatgaa aaaaaaaaaa aaaaaaaaaa 1370

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 <212> PRT
 <213> Glycine max

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 Arg Lys Ile Gln Lys Glu Tyr Asn Phe Leu Arg Phe Arg Trp Pro Ser
 35 40 45
 Leu Asn His His Tyr Lys Ser Ile Glu Gly Gly Cys Thr Cys Lys Lys
 50 55 60
 Cys Asn Ile Lys Phe Val Val Lys Ala Thr Ser Glu Lys Ser Phe Glu
 65 70 75 80
 Ser Glu Pro Gln Ala Phe Asp Pro Lys Ser Ile Leu Asp Ser Val Lys
 85 90 95
 Asn Ser Leu Asp Ala Phe Tyr Arg Phe Ser Arg Pro His Thr Val Ile
 100 105 110
 Gly Thr Ala Leu Ser Ile Ile Ser Val Ser Leu Leu Ala Val Glu Lys
 115 120 125
 Ile Ser Asp Ile Ser Pro Leu Phe Phe Thr Gly Val Leu Glu Ala Val
 130 135 140
 Val Ala Ala Leu Phe Met Asn Ile Tyr Ile Val Gly Leu Asn Gln Leu
 145 150 155 160
 Ser Asp Val Glu Ile Asp Lys Ile Asn Lys Pro Tyr Leu Pro Leu Ala
 165 170 175
 Ser Gly Glu Tyr Ser Phe Glu Thr Gly Val Thr Ile Val Ala Ser Phe
 180 185 190
 Ser Ile Leu Ser Phe Trp Leu Gly Trp Val Val Gly Ser Trp Pro Leu
 195 200 205
 Phe Trp Ala Leu Phe Val Ser Phe Val Leu Gly Thr Ala Tyr Ser Ile
 210 215 220
 Asn Val Pro Leu Leu Arg Trp Lys Arg Phe Ala Val Leu Ala Ala Met
 225 230 235 240
 Cys Ile Leu Ala Val Arg Ala Val Ile Val Gln Leu Ala Phe Phe Leu
 245 250 255
 His Ile Gln Thr His Val Tyr Lys Arg Pro Pro Val Phe Ser Arg Ser
 260 265 270
 Leu Ile Phe Ala Thr Ala Phe Met Ser Phe Phe Ser Val Val Ile Ala
 275 280 285
 Leu Phe Lys Asp Ile Pro Asp Ile Glu Gly Asp Lys Val Phe Gly Ile
 290 295 300
 Gln Ser Phe Ser Val Arg Leu Gly Gln Lys Pro Val Phe Trp Thr Cys
 305 310 315 320
 Val Ile Leu Leu Glu Ile Ala Tyr Gly Val Ala Leu Leu Val Gly Ala
 325 330 335

Ala	Ser	Pro	Cys	Leu	Trp	Ser	Lys	Ile	Val	Thr	Gly	Leu	Gly	His	Ala	
			340					345					350			
Val	Leu	Ala	Ser	Ile	Leu	Trp	Phe	His	Ala	Lys	Ser	Val	Asp	Leu	Lys	
		355					360					365				
Ser	Lys	Ala	Ser	Ile	Thr	Ser	Phe	Tyr	Met	Phe	Ile	Trp	Lys	Leu	Phe	
	370					375					380					
Tyr	Ala	Glu	Tyr	Leu	Leu	Ile	Pro	Phe	Val	Arg						
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 ctctataaag aaagtgctta atttgtgttg ttacttggtt cagtttcc atg gat tgg 117
 Met Asp Trp
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ggg ctt gct ata tct tct cat cct aaa cct tat tca gtc aca act ggt 165
 Gly Leu Ala Ile Ser Ser His Pro Lys Pro Tyr Ser Val Thr Thr Gly
 5 10 15

gga aat ctc tgg cgg agt aaa cac acc acc aag aat att tac ttt gca 213
 Gly Asn Leu Trp Arg Ser Lys His Thr Thr Lys Asn Ile Tyr Phe Ala 35
 20 25 30

agt tct tgg ata tca aaa gct tca cga cac aaa agg gaa act caa ata 261
 Ser Ser Trp Ile Ser Lys Ala Ser Arg His Lys Arg Glu Thr Gln Ile 50
 40 45 50

gaa cat aat gtt ttg agg ttc caa caa cca agt ttg gat cat cat tac 309
 Glu His Asn Val Leu Arg Phe Gln Gln Pro Ser Leu Asp His His Tyr 65
 55 60 65

aaa tgc atc aga gga ggg tct aca tat caa gaa tgc aat aga aaa ttt 357
 Lys Cys Ile Arg Gly Gly Ser Thr Tyr Gln Glu Cys Asn Arg Lys Phe 80
 70 75 80

gtt gtg aag gca atc tct aaa caa cct ctt ggt ttt gaa gct cat gct 405
 Val Val Lys Ala Ile Ser Lys Gln Pro Leu Gly Phe Glu Ala His Ala 95
 85 90 95

tcc aat cct aag aac att ttg gac tct gtc aaa aat gta ttg tct gct 453
 Ser Asn Pro Lys Asn Ile Leu Asp Ser Val Lys Asn Val Leu Ser Ala 115
 100 105 110 115

ttc tac tgg ttt tcc tat cca tac aca atg att ggc ata aca tta tgc 501
 Phe Tyr Trp Phe Ser Tyr Pro Tyr Thr Met Ile Gly Ile Thr Leu Cys 130
 120 125 130

gca ttt tct tca tct ctt ctc gcg gtg gaa aaa tta tca gat ata tct 549

Ala	Phe	Ser	Ser	Ser	Leu	Leu	Ala	Val	Glu	Lys	Leu	Ser	Asp	Ile	Ser	
			135					140					145			
tta	tca	ttt	tta	att	ggc	gtg	tta	cag	ggc	gtg	ctg	cct	caa	ttg	ttt	597
Leu	Ser	Phe	Leu	Ile	Gly	Val	Leu	Gln	Gly	Val	Leu	Pro	Gln	Leu	Phe	
		150					155					160				
att	gaa	att	tat	ctt	tgt	ggc	gtg	aat	caa	ctg	tat	gac	ctt	gaa	ata	645
Ile	Glu	Ile	Tyr	Leu	Cys	Gly	Val	Asn	Gln	Leu	Tyr	Asp	Leu	Glu	Ile	
	165					170					175					
gac	aag	ata	aac	aaa	cca	cat	ctt	cca	atg	gca	tct	gga	caa	ttt	tcc	693
Asp	Lys	Ile	Asn	Lys	Pro	His	Leu	Pro	Met	Ala	Ser	Gly	Gln	Phe	Ser	
180					185					190					195	
ttt	aaa	acc	ggc	gtc	att	att	tct	gca	gca	ttt	tta	gct	ctg	agt	ttt	741
Phe	Lys	Thr	Gly	Val	Ile	Ile	Ser	Ala	Ala	Phe	Leu	Ala	Leu	Ser	Phe	
				200					205					210		
gga	ttt	act	tgg	att	acc	ggc	tct	tgg	cca	ttg	att	tgt	aat	ctt	gta	789
Gly	Phe	Thr	Trp	Ile	Thr	Gly	Ser	Trp	Pro	Leu	Ile	Cys	Asn	Leu	Val	
			215					220					225			
gta	atc	gct	tca	tcg	tgg	acg	gct	tat	tca	atc	gat	gtg	ccc	cta	ctg	837
Val	Ile	Ala	Ser	Ser	Trp	Thr	Ala	Tyr	Ser	Ile	Asp	Val	Pro	Leu	Leu	
		230					235					240				
aga	tgg	aag	aga	tac	cca	ttt	gtc	gca	gca	atg	tgc	atg	att	tct	act	885
Arg	Trp	Lys	Arg	Tyr	Pro	Phe	Val	Ala	Ala	Met	Cys	Met	Ile	Ser	Thr	
	245					250					255					
tgg	gct	ctt	gca	ttg	cca	att	tca	tat	ttc	cat	cac	atg	cag	acc	gtt	933
Trp	Ala	Leu	Ala	Leu	Pro	Ile	Ser	Tyr	Phe	His	His	Met	Gln	Thr	Val	
260					265					270					275	
gtg	ttg	aag	agg	cca	att	ggc	ttt	cca	aga	tca	ttg	ggc	ttt	ctt	gtt	981
Val	Leu	Lys	Arg	Pro	Ile	Gly	Phe	Pro	Arg	Ser	Leu	Gly	Phe	Leu	Val	
				280				285						290		
gca	ttc	atg	acc	ttc	tac	tcc	ttg	ggc	ttg	gca	ttg	tcc	aag	gat	ata	1029
Ala	Phe	Met	Thr	Phe	Tyr	Ser	Leu	Gly	Leu	Ala	Leu	Ser	Lys	Asp	Ile	
			295					300					305			
cct	gac	gtt	gaa	gga	gat	aaa	gag	cac	ggc	att	gat	tct	ttt	gca	gta	1077
Pro	Asp	Val	Glu	Gly	Asp	Lys	Glu	His	Gly	Ile	Asp	Ser	Phe	Ala	Val	
		310					315					320				
cgt	cta	ggc	cag	aaa	cgg	gca	ttt	tgg	att	tgc	gtt	tcc	ttt	ttt	gaa	1125
Arg	Leu	Gly	Gln	Lys	Arg	Ala	Phe	Trp	Ile	Cys	Val	Ser	Phe	Phe	Glu	
	325					330					335					
atg	gct	ttc	gga	gtt	ggc	atc	ctg	gcc	gga	gca	tca	tgc	tca	cac	ttt	1173
Met	Ala	Phe	Gly	Val	Gly	Ile	Leu	Ala	Gly	Ala	Ser	Cys	Ser	His	Phe	
340					345					350					355	
tgg	act	aaa	att	ttc	acg	ggc	atg	gga	aat	gct	gtt	ctt	gct	tca	att	1221
Trp	Thr	Lys	Ile	Phe	Thr	Gly	Met	Gly	Asn	Ala	Val	Leu	Ala	Ser	Ile	
				360					365					370		

ctc tgg tac caa gcc aag tcc gta gat ttg agc gac aaa gct tcc act	1269
Leu Trp Tyr Gln Ala Lys Ser Val Asp Leu Ser Asp Lys Ala Ser Thr	
375 380 385	

gga tct ttc tat atg ttc atc tgg aag cta ttg tat gca ggg ttc ttt	1317
Gly Ser Phe Tyr Met Phe Ile Trp Lys Leu Leu Tyr Ala Gly Phe Phe	
390 395 400	

ctc atg gca tta att aga tga ggatatacgtg gaaggcttaa acaatgttct	1368
Leu Met Ala Leu Ile Arg *	
405	

cgacacatac accaaaataa aaggaatata tgttttgcac ctaagattta ttaaataaag	1428
ccgaatgttg gttcttgtat cattaagatt ttttttttaa ttgtcgaaga ctttatgtat	1488
tcatattcac cttgacttct acgggtcaaat ttttcataaa gtggaataaa agcaacttgg	1548
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			20					25					30				
Tyr	Phe	Ala	Ser	Ser	Trp	Ile	Ser	Lys	Ala	Ser	Arg	His	Lys	Arg	Glu		
		35					40					45					
Thr	Gln	Ile	Glu	His	Asn	Val	Leu	Arg	Phe	Gln	Gln	Pro	Ser	Leu	Asp		
	50					55					60						
His	His	Tyr	Lys	Cys	Ile	Arg	Gly	Gly	Ser	Thr	Tyr	Gln	Glu	Cys	Asn		
65					70					75					80		
Arg	Lys	Phe	Val	Val	Lys	Ala	Ile	Ser	Lys	Gln	Pro	Leu	Gly	Phe	Glu		
				85					90					95			
Ala	His	Ala	Ser	Asn	Pro	Lys	Asn	Ile	Leu	Asp	Ser	Val	Lys	Asn	Val		
			100				105						110				
Leu	Ser	Ala	Phe	Tyr	Trp	Phe	Ser	Tyr	Pro	Tyr	Thr	Met	Ile	Gly	Ile		
		115					120					125					
Thr	Leu	Cys	Ala	Phe	Ser	Ser	Ser	Leu	Leu	Ala	Val	Glu	Lys	Leu	Ser		
	130					135					140						
Asp	Ile	Ser	Leu	Ser	Phe	Leu	Ile	Gly	Val	Leu	Gln	Gly	Val	Leu	Pro		
145					150					155					160		
Gln	Leu	Phe	Ile	Glu	Ile	Tyr	Leu	Cys	Gly	Val	Asn	Gln	Leu	Tyr	Asp		
			165						170					175			
Leu	Glu	Ile	Asp	Lys	Ile	Asn	Lys	Pro	His	Leu	Pro	Met	Ala	Ser	Gly		
			180				185						190				
Gln	Phe	Ser	Phe	Lys	Thr	Gly	Val	Ile	Ile	Ser	Ala	Ala	Phe	Leu	Ala		
		195					200					205					
Leu	Ser	Phe	Gly	Phe	Thr	Trp	Ile	Thr	Gly	Ser	Trp	Pro	Leu	Ile	Cys		
		210				215					220						
Asn	Leu	Val	Val	Ile	Ala	Ser	Ser	Trp	Thr	Ala	Tyr	Ser	Ile	Asp	Val		
225					230					235					240		
Pro	Leu	Leu	Arg	Trp	Lys	Arg	Tyr	Pro	Phe	Val	Ala	Ala	Met	Cys	Met		
				245					250					255			
Ile	Ser	Thr	Trp	Ala	Leu	Ala	Leu	Pro	Ile	Ser	Tyr	Phe	His	His	Met		
			260					265					270				

Gln	Thr	Val	Val	Leu	Lys	Arg	Pro	Ile	Gly	Phe	Pro	Arg	Ser	Leu	Gly	
		275					280					285				
Phe	Leu	Val	Ala	Phe	Met	Thr	Phe	Tyr	Ser	Leu	Gly	Leu	Ala	Leu	Ser	
		290				295					300					
Lys	Asp	Ile	Pro	Asp	Val	Glu	Gly	Asp	Lys	Glu	His	Gly	Ile	Asp	Ser	
305					310					315				320		
Phe	Ala	Val	Arg	Leu	Gly	Gln	Lys	Arg	Ala	Phe	Trp	Ile	Cys	Val	Ser	
				325					330					335		
Phe	Phe	Glu	Met	Ala	Phe	Gly	Val	Gly	Ile	Leu	Ala	Gly	Ala	Ser	Cys	
			340					345					350			
Ser	His	Phe	Trp	Thr	Lys	Ile	Phe	Thr	Gly	Met	Gly	Asn	Ala	Val	Leu	
		355				360						365				
Ala	Ser	Ile	Leu	Trp	Tyr	Gln	Ala	Lys	Ser	Val	Asp	Leu	Ser	Asp	Lys	
		370				375					380					
Ala	Ser	Thr	Gly	Ser	Phe	Tyr	Met	Phe	Ile	Trp	Lys	Leu	Leu	Tyr	Ala	
385					390					395					400	
Gly	Phe	Phe	Leu	Met	Ala	Leu	Ile	Arg								
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<210> 25
 <211> 368
 <212> DNA
 <213> Triticum aestivum

<220>
 <221> CDS
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Ala	Thr	Leu	Phe	Met	Cys	Cys	Phe	Ser	Ala	Val	Ile	Ala	Leu	Phe	Lys	
1				5					10				15			
gat att cct gat gtt gat gga gac cga gat ttt ggc atc caa tcc ttg																96
Asp	Ile	Pro	Asp	Val	Asp	Gly	Asp	Arg	Asp	Phe	Gly	Ile	Gln	Ser	Leu	
			20					25					30			
agt gtg aga ttg ggg cca caa aga gtg tat cag ctc tgc ata agc ata																144
Ser	Val	Arg	Leu	Gly	Pro	Gln	Arg	Val	Tyr	Gln	Leu	Cys	Ile	Ser	Ile	
		35				40						45				
ctg tta aca gcc tat ggg gct gcc act gta gta gga gct tca tcc aca																192
Leu	Leu	Thr	Ala	Tyr	Gly	Ala	Ala	Thr	Val	Val	Gly	Ala	Ser	Ser	Thr	
		50				55					60					
cac cta ctt caa aag atc atc act gtg tct ggc cat ggc ctg ctt gct																240
His	Leu	Leu	Gln	Lys	Ile	Ile	Thr	Val	Ser	Gly	His	Gly	Leu	Leu	Ala	
		65			70					75					80	
gtg aca ctt tgg cag aga gcg cgg cac ctt gag gtt gaa aac caa gcg																288
Val	Thr	Leu	Trp	Gln	Arg	Ala	Arg	His	Leu	Glu	Val	Glu	Asn	Gln	Ala	
				85					90					95		
cgt gtc aca tca ttt tac atg ttc att tgg aag cta ttc tat gca aag																336
Arg	Val	Thr	Ser	Phe	Tyr	Met	Phe	Ile	Trp	Lys	Leu	Phe	Tyr	Ala	Lys	
			100					105						110		

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 Tyr Phe Leu Ile Pro Phe Val Gln *
 115 120

368

<210> 26
 <211> 120
 <212> PRT
 <213> Triticum aestivum

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 Asp Ile Pro Asp Val Asp Gly Asp Arg Asp Phe Gly Ile Gln Ser Leu
 20 25 30
 Ser Val Arg Leu Gly Pro Gln Arg Val Tyr Gln Leu Cys Ile Ser Ile
 35 40 45
 Leu Leu Thr Ala Tyr Gly Ala Ala Thr Val Val Gly Ala Ser Ser Thr
 50 55 60
 His Leu Leu Gln Lys Ile Ile Thr Val Ser Gly His Gly Leu Leu Ala
 65 70 75 80
 Val Thr Leu Trp Gln Arg Ala Arg His Leu Glu Val Glu Asn Gln Ala
 85 90 95
 Arg Val Thr Ser Phe Tyr Met Phe Ile Trp Lys Leu Phe Tyr Ala Lys
 100 105 110
 Tyr Phe Leu Ile Pro Phe Val Gln
 115 120

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 <213> Triticum aestivum

<220>
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<400> 27
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 Met Ala Ser Leu Ala Ser Pro Pro Val Pro Ser
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 cac gcg ccc acc acc gcc gct cgc ttc ctc ccc gcg ccg gcc ggc cgc 100
 His Ala Pro Thr Thr Ala Ala Arg Phe Leu Pro Ala Pro Ala Gly Arg
 15 20 25
 ggc agg cgc ccg tcg ccg ccg gcc gct tca cct atc ttc tcc tct gct 148
 Gly Arg Arg Pro Ser Pro Pro Ala Ala Ser Pro Ile Phe Ser Ser Ala
 30 35 40
 tcc acc cga ttc acc cag tcc ccg cgc gcc ccc tgc ggc gcc gcc cga 196
 Ser Thr Arg Phe Thr Gln Ser Pro Arg Ala Pro Cys Gly Ala Ala Arg
 45 50 55
 ccg cgc tgg cgc gac acc gtg cgg gca tgc tct caa gct ggt gca gct 244
 Pro Arg Trp Arg Asp Thr Val Arg Ala Cys Ser Gln Ala Gly Ala Ala
 60 65 70 75

ggg cca gct cca ctg tca aag aca tta tca gac cta aag gat tcc tgc	292
Gly Pro Ala Pro Leu Ser Lys Thr Leu Ser Asp Leu Lys Asp Ser Cys	
80 85 90	
tgg aga ttt tta agg cca cac aca att cgt gga act gct ttg gga tcc	340
Trp Arg Phe Leu Arg Pro His Thr Ile Arg Gly Thr Ala Leu Gly Ser	
95 100 105	
aca gcc ttg gtt gct aga gca tta tta gag aat ccc caa ttg atc gat	388
Thr Ala Leu Val Ala Arg Ala Leu Leu Glu Asn Pro Gln Leu Ile Asp	
110 115 120	
tgg cgc ttg gta ttc aaa gca tta tat ggc ctt gta gct ttg atc tgc	436
Trp Arg Leu Val Phe Lys Ala Leu Tyr Gly Leu Val Ala Leu Ile Cys	
125 130 135	
ggc aac ggt tac att gtt ggg att aat cag atc tat gac att gga att	484
Gly Asn Gly Tyr Ile Val Gly Ile Asn Gln Ile Tyr Asp Ile Gly Ile	
140 145 150 155	
gac aag gta aac aaa cca tat tta cct att gct gcc ggt gat ctc tca	532
Asp Lys Val Asn Lys Pro Tyr Leu Pro Ile Ala Ala Gly Asp Leu Ser	
160 165 170	
gtt cag tca gca tgg tta ctg gtc gta gca ttc gca gtg gtg ggc ttc	580
Val Gln Ser Ala Trp Leu Leu Val Val Ala Phe Ala Val Val Gly Phe	
175 180 185	
tca ata gtc gtt tca aac ttt gga cct ttc atc acc tct ctt tac tgc	628
Ser Ile Val Val Ser Asn Phe Gly Pro Phe Ile Thr Ser Leu Tyr Cys	
190 195 200	
ctt ggt cta ttt ctt ggc act ata tat tct gtt cct cca ttc aga ctg	676
Leu Gly Leu Phe Leu Gly Thr Ile Tyr Ser Val Pro Pro Phe Arg Leu	
205 210 215	
aag aga tat cca gtt gct gct ttt ctt atc att gcg acg gtt cgt gga	724
Lys Arg Tyr Pro Val Ala Ala Phe Leu Ile Ile Ala Thr Val Arg Gly	
220 225 230 235	
ttc ctt ctc aac ttt ggg gtg tac tat gct act aga gct gca tta ggt	772
Phe Leu Leu Asn Phe Gly Val Tyr Tyr Ala Thr Arg Ala Ala Leu Gly	
240 245 250	
ctt aca ttc caa tgg agc tcg ccc gtt gct ttt att aca tgc ttt gtg	820
Leu Thr Phe Gln Trp Ser Ser Pro Val Ala Phe Ile Thr Cys Phe Val	
255 260 265	
aca gta ttt gct ctg gtc att gct ata acc aaa gat ctt ccg gat gtt	868
Thr Val Phe Ala Leu Val Ile Ala Ile Thr Lys Asp Leu Pro Asp Val	
270 275 280	
gaa ggg gac cgc aaa ttc caa ata tca act ttg gcg aca aag ctt ggt	916
Glu Gly Asp Arg Lys Phe Gln Ile Ser Thr Leu Ala Thr Lys Leu Gly	
285 290 295	
gtc aga aat att gcc ttc ctt ggc tct ggt tta ttg ttg gca aat tat	964

Val	Arg	Asn	Ile	Ala	Phe	Leu	Gly	Ser	Gly	Leu	Leu	Leu	Ala	Asn	Tyr	
300					305					310					315	
gtt	gtt	gct	att	gta	gta	cct	ttt	ctt	att	cct	cag	gct	ttc	agg	agc	1012
Val	Val	Ala	Ile	Val	Val	Pro	Phe	Leu	Ile	Pro	Gln	Ala	Phe	Arg	Ser	
				320					325					330		
ttt	gta	atg	gtg	cct	ttt	cat	gct	gct	ctt	gca	gtt	gct	tta	att	ttt	1060
Phe	Val	Met	Val	Pro	Phe	His	Ala	Ala	Leu	Ala	Val	Ala	Leu	Ile	Phe	
			335					340					345			
cag	aca	tgg	gtt	ctg	gag	caa	gca	aag	tac	agt	aag	gat	gct	att	tca	1108
Gln	Thr	Trp	Val	Leu	Glu	Gln	Ala	Lys	Tyr	Ser	Lys	Asp	Ala	Ile	Ser	
		350					355					360				
cag	tac	tac	cgg	ttc	atc	tgg	aac	ctc	ttc	tat	gcc	gaa	tac	atc	ttc	1156
Gln	Tyr	Tyr	Arg	Phe	Ile	Trp	Asn	Leu	Phe	Tyr	Ala	Glu	Tyr	Ile	Phe	
	365					370					375					
ttc	ccg	tta	ata	tag	agatatggcg	tttgacatcg	gctacacgat	cggagcacgc								1211
Phe	Pro	Leu	Ile	*												
380																
accgaagcac	gaattcgttg	gggcaacaga	agagaaaccc	tttgtggtct	ataaagcgtg											1271
agcaattttt	gtacatactg	tttgactggg	aggggaatag	agcggcgatg	cgacgaggat											1331
cttgacgatg	ctgtgggagg	atccagtaga	aaatgactga	gttttcgtgg	ttgtttctgc											1391
caaacaaaga	ggaaaagaaa	tgaaagtga	aagggtatcg	gccttggttt	ggagggattg											1451
gacgtaaaaa	aaaaaaaaa	aaaaca														1477

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 <211> 383
 <212> PRT
 <213> Triticum aestivum

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			20					25					30		
Pro	Pro	Ala	Ala	Ser	Pro	Ile	Phe	Ser	Ser	Ala	Ser	Thr	Arg	Phe	Thr
		35				40					45				
Gln	Ser	Pro	Arg	Ala	Pro	Cys	Gly	Ala	Ala	Arg	Pro	Arg	Trp	Arg	Asp
	50					55				60					
Thr	Val	Arg	Ala	Cys	Ser	Gln	Ala	Gly	Ala	Ala	Gly	Pro	Ala	Pro	Leu
65					70					75					80
Ser	Lys	Thr	Leu	Ser	Asp	Leu	Lys	Asp	Ser	Cys	Trp	Arg	Phe	Leu	Arg
			85						90					95	
Pro	His	Thr	Ile	Arg	Gly	Thr	Ala	Leu	Gly	Ser	Thr	Ala	Leu	Val	Ala
			100					105					110		
Arg	Ala	Leu	Leu	Glu	Asn	Pro	Gln	Leu	Ile	Asp	Trp	Arg	Leu	Val	Phe
		115					120					125			
Lys	Ala	Leu	Tyr	Gly	Leu	Val	Ala	Leu	Ile	Cys	Gly	Asn	Gly	Tyr	Ile
	130					135				140					
Val	Gly	Ile	Asn	Gln	Ile	Tyr	Asp	Ile	Gly	Ile	Asp	Lys	Val	Asn	Lys
145					150					155					160
Pro	Tyr	Leu	Pro	Ile	Ala	Ala	Gly	Asp	Leu	Ser	Val	Gln	Ser	Ala	Trp
			165					170						175	
Leu	Leu	Val	Val	Ala	Phe	Ala	Val	Val	Gly	Phe	Ser	Ile	Val	Val	Ser

			180					185				190				
Asn	Phe	Gly	Pro	Phe	Ile	Thr	Ser	Leu	Tyr	Cys	Leu	Gly	Leu	Phe	Leu	
		195					200					205				
Gly	Thr	Ile	Tyr	Ser	Val	Pro	Pro	Phe	Arg	Leu	Lys	Arg	Tyr	Pro	Val	
	210					215					220					
Ala	Ala	Phe	Leu	Ile	Ile	Ala	Thr	Val	Arg	Gly	Phe	Leu	Leu	Asn	Phe	
225					230					235					240	
Gly	Val	Tyr	Tyr	Ala	Thr	Arg	Ala	Ala	Leu	Gly	Leu	Thr	Phe	Gln	Trp	
				245					250					255		
Ser	Ser	Pro	Val	Ala	Phe	Ile	Thr	Cys	Phe	Val	Thr	Val	Phe	Ala	Leu	
			260					265					270			
Val	Ile	Ala	Ile	Thr	Lys	Asp	Leu	Pro	Asp	Val	Glu	Gly	Asp	Arg	Lys	
	275						280					285				
Phe	Gln	Ile	Ser	Thr	Leu	Ala	Thr	Lys	Leu	Gly	Val	Arg	Asn	Ile	Ala	
	290					295					300					
Phe	Leu	Gly	Ser	Gly	Leu	Leu	Leu	Ala	Asn	Tyr	Val	Val	Ala	Ile	Val	
305					310					315					320	
Val	Pro	Phe	Leu	Ile	Pro	Gln	Ala	Phe	Arg	Ser	Phe	Val	Met	Val	Pro	
				325					330					335		
Phe	His	Ala	Ala	Leu	Ala	Val	Ala	Leu	Ile	Phe	Gln	Thr	Trp	Val	Leu	
			340					345					350			
Glu	Gln	Ala	Lys	Tyr	Ser	Lys	Asp	Ala	Ile	Ser	Gln	Tyr	Tyr	Arg	Phe	
	355						360					365				
Ile	Trp	Asn	Leu	Phe	Tyr	Ala	Glu	Tyr	Ile	Phe	Phe	Pro	Leu	Ile		
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 <211> 473
 <212> DNA
 <213> Triticum aestivum

<220>
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gtgtatcagc tctgcataag catactgtta acagcctatg gggctgccac tgtagtagga	180
gcttcatcca cacacctact tcaaaagatc atcactgtgt ctggccatgg cctgcttgct	240
gtgacacttt ggcagagagc gcggcacctt gaggttgaaa accaagcgcg tgtcacatca	300
ttttacatgt tcatttggaa ggtaactaat taagttgctc gcatatattg tgcattctct	360
aagccattaa actttggcta tatatgccta atgattatct gcacttattg tgtcactttc	420
atgcagctat tctatgcaaa gtatttcctt ataccgtttg tgcaataaaa ttt	473

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 <212> DNA
 <213> Artificial Sequence

<220>
 <223> PCR primer

<400> 30
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<210> 31

<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR primer

<400> 31
agcgcggccg catggacgcg ctgcgcctac ggccgt

36

<210> 32
<211> 35
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR primer

<400> 32
agcgcggccg ctcaccgcac cagagggatg agcag

35